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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,764	04/09/2002	Tadashi Sugawara	011474	3009
23850	7590	04/20/2004	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP 1725 K STREET, NW SUITE 1000 WASHINGTON, DC 20006			KOSLOW, CAROL M	
			ART UNIT	PAPER NUMBER
			1755	

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,764

Applicant(s)

SUGAWARA ET AL.

Examiner

C. Melissa Koslow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/17/01.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

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The disclosure is objected to because of the following informalities:

Applicants' discussion of the properties of the particles and their statement that the unpaired electrons form π -bonds with the gold particles and thus ferromagnetically align the spin of the unpaired electrons is counter to the theoretical basics of magnetism. The d-band of the gold is filled and thus there are no free electrons to provide the energy which would align the unpaired or free electrons. While the unpaired electrons may bond with the unpaired s electron, this bond would not cause a magnetic moment. Applicants state the particles have a Weiss temperature, which is the same as a Curie temperature for ferromagnetic compound, of -2.5 K. How did applicants determine that the Curie or Weiss temperature was -2.5 K? The taught particles are paramagnetic since ferromagnetic materials because paramagnetic above the Curie or Weiss temperature which is below 0K, and thus how are the spins ferromagnetically, i.e. spontaneously, aligned? Applicants state the particles when conjugatively bonded form a ferromagnetic material. Applicants need to explain how this occurs since there does not appear to be any exchange energy in the material to provide the energy to cause alignment of the spins of unpaired electrons.

Applicants used the phrase "long-chain alkyl" but there is no indication what minimum chain length would applicants consider as a long chain. There is no accepted definition for this term in the art.

One of ordinary skill in the art can not predict which sulfur containing organic radicals have unpaired electrons in the atom which bonds to the metal particle. Applicants only teaches two radicals, which have similar formulas and structure, as meeting the requirements to form an organic-inorganic composite having the disclosed properties. While JP 6-45142 teaches radicals

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with unpaired electrons, the unpaired electrons in these radicals do not bond with the surface, as in the particles defined in this application. Therefore, one of ordinary skill in the art could not use the teachings of JP 6-45142 to determine what other radicals besides the two disclosed by applicants would produce the disclosed magnetic particles. Accordingly, there is a question if the specification enables the production of other particles besides those two specifically disclosed in the specification. Appropriate correction is required.

Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "long chain" in claim 2 is a relative term which renders the claim indefinite. The term "long chain" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. There is no set definition for this term in the art.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. Applicants need to rewrite the processes in claims 1 and 6 so that the process of forming the particles is clearly set forth.

Claims 2, 4 and 5 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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There is no teaching in the specification of any thiol-substituted π -conjugated organic radicals having a long-chain alkyl groups as claimed. The specification only teaches thiol containing phenyl nitronyl nitroxide and phenyl nitroxide. These two π -conjugated organic radicals, where the π -conjugated bonds are present in the phenyl group do not provide support for the claimed radicals, since they do not include a long chain alkyl group and the taught phenyl group does not support all π -conjugated organic radicals, such as methine bond containing radicals.

There is no teaching in the specification of a bridging ligand having a π -conjugated system, nor that the bridging ligand enhances the magnetic interaction between the particle in course of forming the film.

Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claimed processes and particles do not appear to be enabled for the reasons given above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell, can be reached at (571) 272-1362.

The fax number for all official communications is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk
April 19, 2004



C. Melissa Koslow
Primary Examiner
Tech. Center 1700